west virginia department of environmental protection

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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.:	R13-2870
Plant ID No.:	103-00006
Applicant:	Dominion Transmission, Inc. (DTI)
Facility Name:	Lewis Wetzel Compressor Station
Location:	Pine Grove, Wetzel County
SIC Code:	4922
NAICS Code:	486210
Application Type:	Modification
Received Date:	November 8, 2010
Engineer Assigned:	Jerry Williams II, P.E.
Fee Amount:	$2,000.00
Date Received:	November 8, 2010
Complete Date:	December 9, 2010
Due Date:	March 9, 2011
Applicant Ad Date:	November 10, 2010
Newspaper:	*Wetzel Chronicle*
UTM's:	Easting: 528.21 km Northing: 4377.74 km Zone: 17
Description:	Construction of a natural gas compressor station

DESCRIPTION OF PROCESS

The following process description was taken from Permit Application R13-2870:

DTI is proposing to construct a new natural gas compression station, the Lewis Wetzel Compressor Station. The new station will compress gas from DTI's TL-283 to TL-430, both existing pipelines. DTI has determined that the Lewis Wetzel Compressor Station will be a modification to the existing Hastings Compressor Station, which is permitted under Title V permit R30-10300006-2006. The Hastings Compressor Station Title V Permit currently includes the Hastings Compressor Station and Mockingbird Hill Compressor Station. Both facilities are in close proximity and under common control.

The proposed equipment at the Lewis Wetzel Compressor Station will include the following:

1. One (1) Caterpillar Reciprocating Internal Combustion Engine. The natural gas fired engine will be a Model 3612, DM8607-01, 4SLB, rated at 3,550 HP. The engine will be a low emission lean burn engine resulting in low NO_x emissions, and will be equipped with an oxidation catalyst to reduce CO, VOC, and formaldehyde emissions.

2. One (1) Cummins Auxiliary Generator Set. The natural gas fired generator will be a Model KTA19SLB, 4SLB, rated at 530 HP. The generator will be used as an emergency generator to provide power for the compressor station and will be limited to 500 hours per year of operation.

3. One (1) Bryan Steam Corp. Boiler. The natural gas fired boiler will be a Model RV 450W-FDG natural gas fired boiler, rated at 4.5 MMBtu/hr. The boiler will provide hot water for process heating.

SITE INSPECTION

A compliance inspection was conducted on March 11, 2010 by Becky Johnson of the DAQ Enforcement Section. The facility was operating in compliance at that time.

Directions as given in the permit application are as follows:

From Clarksburg, take Rt. 20 North for 37 miles to Hastings. Station entrance is on the left side of the road.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Maximum controlled point source emissions associated with Permit Application R13-2870 from DTI's Lewis Wetzel Compressor Station are summarized in the table below.

Emission Point ID	Emission Unit ID	Process Unit	Pollutant	Maximum Controlled Emission Rate	
				Hourly (lb/hr)	Annual (ton/year)
EN03	001-03	3,550 hp Caterpillar 3612 Compressor Engine	Nitrogen Oxides	3.92	17.14
			Carbon Monoxide	15.07	65.99
			Volatile Organic Compounds	3.01	13.17
			Particulate Matter-10	0.01	0.01
			Sulfur Dioxide	0.02	0.07
			Formaldehyde	1.88	8.23
AUX05	002-05	530 hp Cummins Auxiliary Generator	Nitrogen Oxides	1.70	0.43
			Carbon Monoxide	1.76	0.44
			Volatile Organic Compounds	0.22	0.06
			Particulate Matter-10	0.01	0.01
			Sulfur Dioxide	0.01	0.01
			Formaldehyde	0.22	0.06
BLR05	005-05	4.5 MMBtu/hr Bryan Steam Boiler	Nitrogen Oxides	0.47	2.06
			Carbon Monoxide	0.40	1.73
			Volatile Organic Compounds	0.03	0.12
			Particulate Matter-10	0.01	0.04
			Sulfur Dioxide	0.01	0.02
FUG	FUG	Fugitive Emissions	Volatile Organic Compounds	2.16	9.45
			Hexane	0.18	0.76

The following table indicates the control efficiency that is achieved from controlling the compressor engine (EN03) with a catalytic converter (oxidation and reduction) (CC1):

Control Device ID	Control Device	Emission Unit	Pollutant	Control Efficiency
CC1	Catalytic Converter (Oxidation and Reduction)	3,550 hp Caterpillar 3612 Compressor Engine	Carbon Monoxide	30 %
			Volatile Organic Compounds	40 %
			Formaldehyde	40 %

The following table represents the total emissions increase associated with the Lewis Wetzel Compressor Station:

Pollutant	Maximum Annual Facility Wide Emissions (tons/year)
Nitrogen Oxides	19.62
Carbon Monoxide	68.15
Volatile Organic Compounds	22.78
Particulate Matter-10	0.05
Sulfur Dioxide	0.08
Formaldehyde	8.28

REGULATORY APPLICABILITY

Unless otherwise stated WVDEP DAQ did not determine whether the permittee is subject to an area source air toxics standard requiring Generally Achievable Control Technology (GACT) promulgated after January 1, 2007 pursuant to 40 CFR 63, including the area source air toxics provisions of 40 CFR 63, Subpart HH and 40 CFR 63, Subpart ZZZZ.

The following rules apply to this permitting action:

45CSR2 (Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers)

DTI would be subject to the opacity requirements in 45CSR2, which is 10% opacity based on a six minute block average.

45CSR4 (To Prevent and Control the Discharge of Air Pollutants into the Open Air which Causes or Contributes to an Objectionable Odor or Odors)

45CSR4 states that an objectionable odor is an odor that is deemed objectionable when in the opinion of a duly authorized representative of the Air Pollution Control Commission (Division of Air Quality), based upon their investigations and complaints, such odor is objectionable. No odors have been deemed objectionable.

45CSR13 (Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation)

45CSR13 applies to this source due to the fact that DTI exceeds the regulatory emission threshold for criteria pollutants of 6 lb/hr and 10 ton/year, and DTI is subject to a substantive requirement of an emission control promulgated by the Secretary.

45CSR16 (Standards of Performance for New Stationary Sources Pursuant to 40 CFR Part 60)

45CSR16 applies to this source by reference of 40CFR60, Subpart JJJJ. DTI is subject to the recordkeeping, monitoring, and testing required by 40CFR60, Subpart JJJJ.

45CSR30 (Requirements for Operating Permits)

DTI is an existing major source subject to 45CSR30. Changes authorized by this permit must also be incorporated into the facility's Title V operating permit. Commencement of the operations authorized by this permit shall be determined by the appropriate timing limitations associated with Title V permit revisions per 45CSR30.

40CFR60 Subpart JJJJ (Standards of Performance for Stationary Spark Ignition Internal Combustion Engines)

DTI's proposed compressor engine (EN03) and auxiliary generator (AUX05) are subject to 40CFR60 Subpart JJJJ, which sets forth emission limits, fuel requirements, installation requirements, and monitoring requirements based on the year of installation of the subject internal combustion engine.

The 3,550 hp Caterpillar 3612 compressor engine (EN03) is subject to the following emission limits for those engines manufactured after July 1, 2010: NO_x – 1.0 g/hp-hr (7.83 lb/hr); CO – 2.0 g/hp-hr (15.65 lb/hr); and VOC – 0.7 g/hp-hr (5.48 lb/hr).

The 530 hp Cummins auxiliary generator (AUX05) is subject to the following emission limits for those engines manufactured after January 1, 2009: NO_x – 2.0 g/hp-hr (2.34 lb/hr); CO – 4.0 g/hp-hr (4.68 lb/hr); and VOC – 1.0 g/hp-hr (1.17 lb/hr).

Because the compressor engine (EN03) will not be certified by the manufacturer, DTI will be required to perform an initial performance test within 180 days from startup, and subsequent testing every 8,760 hours or 3 years, whichever comes first.

According to DTI, the auxiliary generator (AUX05) plans to purchase a certified engine, therefore, DTI will not be required to conduct a performance test.

The following regulations do not apply to the facility:

45CSR14 (Permits for Construction and Modification of Major Sources of Air Pollution for the Prevention of Significant Deterioration)

> The construction of the Lewis Wetzel Compressor Station does not constitute a major modification under 45CSR14. The increased potential emissions associated with the Lewis Wetzel Compressor Station are less than the significant amounts set forth in 45CSR14. Therefore, a major modification has not occurred as a result of this permitting action.

The following rules may apply to the facility:

40CFR63 Subpart ZZZZ (National Emission Standards for Reciprocating Ignition Internal Combustion Engines)

40CFR63 Subpart HH (National Emission Standards for Hazardous Air Pollutants: Oil and Natural Gas Production and National Emission Standards for Hazardous Air Pollutants: Natural Gas Transmission and Storage)

40CFR63 Subpart HHH (National Emission Standards for Hazardous Air Pollutants: Natural Gas Transmission and Storage)

> WVDEP DAQ did not determine whether the permittee is subject to an area source air toxics standard requiring Generally Achievable Control Technology (GACT) promulgated after January 1, 2007 pursuant to 40 CFR 63, including the area source air toxics provisions of 40 CFR 63, Subpart HH and 40 CFR 63, Subpart ZZZZ.
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> These promulgated national emission standards for hazardous air pollutants (NESHAP) limit emissions of hazardous air pollutants (HAP) from oil and natural gas production and natural gas transmission and storage facilities. These final rules implement section 112 of the Clean Air Act (Act) and are based on the Administrator's determination that oil and natural gas production and natural gas transmission and storage facilities emit HAP identified on the EPA's list of 188 HAPs.
>
> The existing Hastings Compressor Station is a natural gas production site, and the existing Mockingbird Hill Compressor Station is a transmission facility. The Lewis Wetzel Compressor Station will also be a transmission facility. According to 40CFR63 Subpart ZZZZ, 'major source of HAP emissions' is defined as a plant site that emits or has the potential to emit any single HAP at a rate of 10 tons (9.07 megagrams) or more per year or any combination of HAP at a rate of 25 tons (22.68 megagrams) or more per year, except that for oil and gas production facilities, a major source of HAP emissions is determined for each surface site. Therefore, since these three (3) stations are located on separate surface sites, HAP emissions from these facilities are not aggregated in determining major source NESHAP applicability, but individually evaluated for major HAP source determination. This results in the Lewis Wetzel Compressor Station being an area source of air toxics. Additionally, even with the addition of the Lewis Wetzel Compressor Station

to the Mockingbird Hill Station, aggregate HAP emissions would remain below major HAP thresholds.

In making a determination on whether or not these sources should be aggregated for permitting purposes, USEPA uses a three criteria test to determine whether or not multiple facilities should be considered one source. All three scenarios must be true in order for this to be reviewed as such. The facilities must be under common ownership and control, have the same Standard Industrial Classification (SIC) code, and be contiguous and adjacent. The Lewis Wetzel and Hastings Compressor Stations meet all three (3) of these criteria.

Therefore, they are required to be reviewed as the same facility.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

There will be small amounts of various non-criteria regulated pollutants emitted from the combustion of natural gas. However, due to the concentrations emitted, detailed toxicological information is not included in this evaluation.

AIR QUALITY IMPACT ANALYSIS

The changes to this facility do not constitute a major modification under 45CSR14. Based on the nature of the emissions and the annual emission rate, no air quality impact analysis was performed.

MONITORING OF OPERATIONS

DTI will be required to perform the following monitoring:

1. Monitor and record quantity of natural gas consumed for all combustion sources.
2. Monitor all applicable requirements of 40CFR60 Subpart JJJJ.

DTI will be required to perform the following recordkeeping:

1. Maintain records of the amount of natural gas consumed in each combustion source.
2. Maintain records of testing conducted in accordance with the permit. Said records shall be maintained on-site or in a readily accessible off-site location
3. Maintain the corresponding records specified by the on-going monitoring requirements of and testing requirements of the permit.
4. Maintain records of the visible emission opacity tests conducted per the permit.
5. Maintain a record of all potential to emit (PTE) HAP calculations for the entire facility. These records shall include the natural gas compressor engines and ancillary equipment.
6. The records shall be maintained on site or in a readily available off-site location maintained by DTI for a period of five (5) years.
7. Maintain records of all applicable requirements of 40CFR60 Subpart JJJJ.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates DTI's Lewis Wetzel Compressor Station meets all the requirements of applicable regulations. Therefore, impact on the surrounding area should be minimized and it is recommended that the Wetzel County location should be granted a 45CSR13 modification permit for their facility.

Jerry Williams II, P.E.
Engineer

Date